



Academic Press Dictionary of Science and Technology

Edited by
Christopher Morris



Academic Press

Harcourt Brace Jovanovich, Publishers

San Diego New York Boston London Sydney Tokyo Toronto

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Academic Press, Inc.

1250 Sixth Avenue, San Diego, California 92101-4311

United Kingdom Edition published by

Academic Press Limited

24-28 Oval Road, London NW1 7DX

Library of Congress Cataloging-in-Publication Data

Academic Press dictionary of science and technology / edited by

Christopher Morris

p. cm.

ISBN 0-12-200400-0

1. Science--Dictionaries. 2. Technology--Dictionaries.

I. Morris, Christopher G. II. Academic Press. III. Title:

Dictionary of science and technology.

Q123.A33 1991

503--dc20

90-29032

CIP

PRINTED IN THE UNITED STATES OF AMERICA

92 93 94 95 96 97 DO 9 8 7 6 5 4 3 2 1

Giganturoidei *Vertebrate Zoology*. the giganturids, a monofamilial suborder of mesopelagic marine fishes of the order Cetomimiformes, having large, tubular eyes and a jellylike tissue beneath the skin.

Gigartina *Botany*. a type genus of red algae of the family Gigartinaceae, characterized by fleshy or cartilaginous fronds with numerous outgrowths; found mainly in the Pacific Ocean.

Gigartinaceae *Botany*. an economically important family of red algae of the order Gigartinales, characterized by branched gametangial thalli that arise from a discoid crustose base and by spermatangia formed in superficial clusters; used as a major source of carrageenans in various parts of the world.

Gigartinales *Botany*. an order belonging to the red alga division Rhodophyta, characterized by widely varying thalli, a carposporium arising from the apical cell of an undifferentiated thallus filament, and transfer of a zygote nucleus to an auxiliary cell after fertilization.

Gigaspermaceae *Botany*. a family of very small mosses of the order Funariales, characterized by an underground creeping stem and erect bulbiform branches with soft, whitish-green leaves; plants are adapted to xeric, bare soil; found in the Southern Hemisphere.

GIGO [gi'gō] *Computer Programming*. see GARBAGE IN, GARBAGE OUT.

gigohm *Electricity*. a unit of measurement equivalent to 10^9 ohms.

Gila monster or **gila monster** [hē'lə] *Vertebrate Zoology*. a venomous lizard, *Heloderma suspectum*, characterized by a thick body and tail, beaded orange skin with black patches, short legs, and five-toed feet with strong claws; found in desert areas of western North America, ranging from southern Nevada and Utah to Sonora in northwest Mexico. (First identified in the region of the Gila River of southern Arizona.)



Gila monster

Gilbert, Walter born 1932, American biochemist; shared Nobel Prize for mapping nucleotide sequence (structure of DNA).

Gilbert, William 1544–1603, English physician and scientist; author of *De Magnete*, pioneering study of electricity and magnetism.

gilbert *Electromagnetism*. a unit of magnetomotive force equal to the magnetomotive force of a closed loop of one turn in which there is a current of $1/4$ (3.14) abamp.

Gilbert circuit *Electronics*. a circuit that uses the logarithmic properties of diodes and transistors to compensate for nonlinearities and instabilities in monolithic variable-transconductance circuits.

Gilbreth, Frank 1868–1924 and his wife Lillian 1878–1972, American industrial engineers; pioneers in techniques of scientific management.

Gilbreth's micromotion study *Industrial Engineering*. a pioneering study of basic human work motions and times, leading to the identification of elemental motions.

gilding *Graphic Arts*. the process of coating an image with a gold-colored material such as leaf.

gilding metal *Metallurgy*. a copper-base alloy containing 5% zinc.

gill *Vertebrate Zoology*. the respiratory structure of all fishes, found in sets of varying quantities and consisting of a multifolded surface membrane (for greater surface area) heavily supplied with blood vessels under a thin wall to allow for gas (i.e., oxygen) exchange. *Mycology*. in fungi belonging to the subdivision Basidiomycotina, a structure, resembling knife blades, that is located on the underside of mushroom caps and bears the spores. Also, LAMELLA. *Metrology*. 1. a unit of liquid measure used in the U.S., equal to 4 fl oz or 118.29 ml. 2. a similar unit of measure used in Great Britain, equal to 5 imperial fl oz or 142.07 ml. Also, IMPERIAL GILL.

gill cover *Vertebrate Zoology*. a movable, external flap following the contours of the gill chamber downward and forward beneath the jaws, behind the cheek region of most teleost fishes. Also, OPERCULUM.

Gillespie equilibrium still *Analytical Chemistry*. a recirculating distillation device used in the process of determining the azeotropic properties of liquids.

gillespite *Mineralogy*. $\text{BaFe}^{+2}\text{Si}_4\text{O}_{10}$, a red, tetragonal mineral, massive in habit, having a specific gravity of 3.3 to 3.4 and a hardness of 3 to 4 on the Mohs scale; found with quartz and celsian.

Gilliland correlation *Chemical Engineering*. a method for approximating distillation-column calculations, in which the reflux ratio and number of plates for the column are correlated and presented graphically as functions of minimum reflux and minimum number of plates.

gill net *Engineering*. a curtainlike mesh net suspended from a fishing boat to catch fish by ensnaring their gill covers in the mesh.

gill raker *Vertebrate Zoology*. a comblike skeletal structure arranged in rows, found on the gill bar of the fish gill and extending inward in the cavity of the pharynx to act as a screen against food particles and other solid substances.

gilpinite see JOHANNITE.

gilsonite *Mineralogy*. a very brittle, jet-black variety of asphaltite, having a conchoidal fracture, a specific gravity of 1.05 to 1.1, and a hardness of 2 to 2.5 on the Mohs scale; found only in the U.S. and used in waterproof coatings, lacquers, and mineral wax. Also, UINTAHITE.

gilt *Agriculture*. a female swine that has not produced a litter.

gimbal [jim' bəl; gim' bəl] *Engineering*. 1. a mechanical mounting frame having two mutually perpendicular axes of rotation. 2. a support component of a gyro, which allows the spin axis to move freely. 3. to mount an object on a gimbal

gimbaled inertial system *Navigation*. an inertial system in which the inertial sensors are mounted on gimbals and are thus unaffected by changes in the orientation of the craft.

gimbal mount *Mechanical Engineering*. a mount equipped with gimbals, commonly used to support a nautical compass or gyroscope.

Gimenez stain *Microbiology*. a method for the bacteriological staining of rickettsia cells, in which heat-fixed cells are stained green with malachite green oxalate.

gimlet *Mechanical Devices*. a small, sharp boring tool with a pointed, threaded, and fluted tip; used in woodworking.

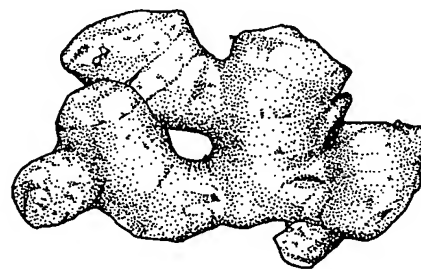
gimmick *Electricity*. a term for a twisted, two-conductor cable that serves as a variable capacitive load, and in which capacitance is adjusted by untwisting each conductor.

gin *Agriculture*. 1. to remove the seeds of cotton from the lint. 2. a machine that performs this process, or a building in which the process is performed. Also, COTTON GIN. *Mechanical Engineering*. a three-legged hoisting machine equipped with pulleys, ropes, and a windlass.

gin block *Naval Architecture*. a heavy-duty metal block, usually with open metal cheeks.

G indicator see G DISPLAY.

ginger *Botany*. a plant of the species *Zingiber officinalis*; a perennial tropical herb of the family Zingiberaceae, having thick, scaly rhizomes that are ground to produce an aromatic yellow spice that is used in cooking and in medicine; native to the East Indies but now cultivated in most tropical countries.



ginger

ginger blotch *Plant Pathology*. a disease of the ginger tree, possibly caused by the fungus *Pseudomonas fluorescens*, which is characterized by irregular, discolored markings on plant parts.

gingiv- or gingivo- a combining form meaning "gums," as in *gingivitis*, *gingivoplasty*.

gingiva [jin'jə və] *Anatomy*. the gums; the tissue around the necks of the teeth.

gingival [jin'jə vəl] *Anatomy*. of or relating to the gums.

gingival crevice *Anatomy*. the narrow space between the gingiva and the surface of a tooth.

gingivitis [jin'jə vi'tiəs] *Medicine*. an inflammation of the gingiva; when associated with bony changes it is referred to as periodontitis.

gingivostomatitis *Medicine*. an inflammation of the gingiva and oral mucosa.

Gilsonite

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Gilsonite is the registered trademark for a form of natural asphalt found in large amounts in the Uinta Basin of Utah; the non-trademarked mineral name is **uintaite** or **uintahite**.

^[1] It is mined in underground shafts and resembles shiny black obsidian. Discovered in the 1860s, it was first marketed as a lacquer, electrical insulator, and waterproofing compound about twenty-five years later by Samuel H. Gilson.^[2] By 1888 Gilson had started a company to mine the substance, but soon discovered the vein was located on the Uintah and Ouray Indian Reservation. Under great political pressure Congress removed some 7,000 acres (28 km²) from the reservation on May 24, 1888 to allow the mining to proceed legally.^[3] Gilsonite mining became the first large commercial enterprise in the Uinta Basin, causing most of its early population growth.

This unique mineral is used in more than 160 products, primarily in dark-colored printing inks and paints, oil well drilling muds and cements, asphalt modifiers, foundry sand additives, and a wide variety of chemical products. The trademark, registered in 1921, belongs to the American Gilsonite Company.^[4]

Gilsonite-brand uintahite's earliest applications included paints for buggies and emulsions for beer-vat lining. It was used by Ford Motor Company as a principal component of the Japan Black lacquer used on most of the Ford Model T cars.^[5]



Gilsonite mine in Bonanza

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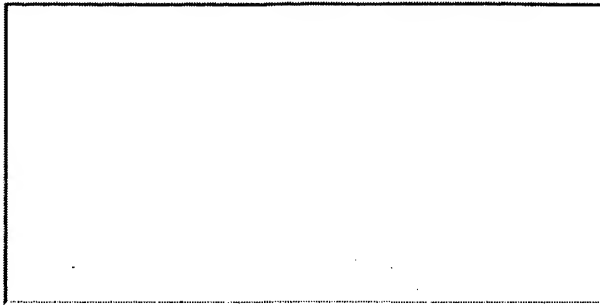
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Dictionary:

Gilsonite

(gĭl'sŏ-nīt') 

A trademark used for a natural black bitumen employed in the manufacture of acid, alkali, and waterproof coatings.

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Wikipedia: Gilsonite



Gilsonite mine in Bonanza



Gilsonite® since 1921 is the federally registered trademark of the American Gilsonite Company for a form of natural asphalt found in large amounts only in the Uintah Basin of Utah; the non-trademarked mineral name is uintahite or uintaite. It is mined in underground shafts and resembles shiny black obsidian. Discovered in the 1860s, it was first marketed as a lacquer, electrical insulator and waterproofing compound about twenty-five years later by Samuel H. Gilson. This unique mineral is used in more than 160 products, primarily in dark-color printing inks and paints, oil well drilling muds and cements, asphalt modifiers, foundry sands additives and a wide variety of chemical products.

Modern geologists believe that the origin of uintaite is linked to the rich oil shale of the Green River Formation that underlies much of the basin. Deep vertical fissures in the earth's surface were once filled with a heavy, viscous hydrocarbon that lost its volatile constituents and solidified millions of years ago.

Uintaite is a glossy, black, solid hydrocarbon resin similar in appearance to coal or hard asphalt. It is brittle and lightweight and can be easily crushed into powder. Its unique chemical properties identify it as belonging to its own sub-group of the asphaltite family. Uintaite occurs naturally in a very pure state, and softens in a range of temperatures according to grade, from 300 to 400 degrees Fahrenheit (150-205 degrees Celsius). It has low specific gravity, high nitrogen content and very lower sulfur content. It is non-carcinogenic and safe to handle its natural state.

Mining uintaite during World War II was by hand, using a six pound pick and then shoveling the ore into 200 pound sacks, which were sewn by hand. Some claim that in 1949 at the Pariette (Culmer) Gilsonite mine near Myton, Utah, Reed Smoot McConkie set the world record for ore mined by hand. Using his pick and shovel, he mined 175 bags of ore in an 8 hour day, 950 bags in a six day week, 1925 bags in a month and 15,000 bags in a year.

Recently, some Iranians maintain that there are some mines in Kermanshah, Iran that have been discovered and extracted for some years. However, the materials found in Iran are not uintaite and are chemically different in several important ways. The minerals found in Iran are a different asphaltite from the uintaite mineral found in Utah.

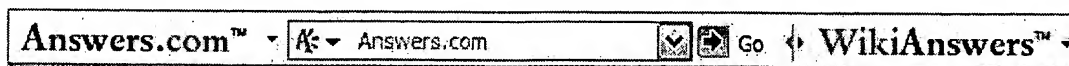
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